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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,480	02/26/2004	Daniel P. Silver	20363-011 CON	8561

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EXAMINER	
SULLIVAN, DANIEL M	
ART UNIT	**PAPER NUMBER**
1636	

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/789,480	SILVER ET AL.	
	Examiner	Art Unit	
	Daniel M. Sullivan	1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) *1-5,7-11 and 26-34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6 and 12-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/26/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This is the First Office Action on the Merits of the application filed 26 February 2004 as a continuation of application 09/834,778 filed 12 April 2001, which claims benefit of provisional application 60/196,338 filed 12 April 2000. The preliminary amendment filed 8 September 2004 has been entered. Claims 1-34, as originally filed, are pending.

Election/Restrictions

Applicant's election of Group IV (claims 6 and 12-25) in the reply filed on 6 February 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 1-5, 7-11 and 26-34 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the 6 February reply.

Claims 6 and 12-25 are presently under consideration.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 12-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6, 14, 15, 21, 22, 24 and 25 are indefinite in the recitation "said recombinase" because the antecedent basis for the limitation is unclear. Claim 6 uses the phrase "a recombinase" twice in lines 25-26 (*i.e.*, "a recombinase gene operably linked to an expression control sequence" and "signal sequences recognized by a recombinase"). As according to the broadest reasonable interpretation of the claim the recombinase gene and the recombinase that recognizes the signal sequences need not be the same, there are possibly two distinct recombinases in claim 6. It is unclear which recombinase is being referred to as "said recombinase" subsequently in claim 6 and in the dependent claims.

Claim 6 is further indefinite because it is unclear whether the claim requires that the recombinase gene be operably linked to the signal sequences recognized by a recombinase. The claim recites that the first nucleic acid molecule "comprises a recombinase operably linked to an expression control sequence and signal sequences recognized by a recombinase". It is unclear whether "operably linked" refers to both elements comprised by the first nucleic acid or only to the expression control sequence (*i.e.*, the signal sequences need not be operably linked to the recombinase gene).

Claims 12, 13, 16-20 and 23 are indefinite insofar as they depend from claim 6.

Claim 16 is further indefinite in the reciting that the tissue of the plant is edible or inedible. There is not explicit definition of the terms in the specification and the common meaning of the limitations is simply that the tissue can be eaten or cannot be eaten. However, whether a given part of a plant can or cannot be eaten depends upon the organism doing the eating. For example, certain parts of a plant that might be considered inedible to humans can be

eaten by ruminants. Therefore, the scope of the claim varies depending upon the organism eating the plant, which is not defined. In view of this, the scope of the claim as a whole is indefinite.

Claims 21 and 22 are further indefinite in reciting, "said region encoding said recombinase". There is no antecedent basis for a defined "region encoding a recombinase" in claim 6, from which claims 21 and 22 depend.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 6, 12, 17-23 and 25 are rejected under 35 U.S.C. 102(a or e) as being anticipated by Hodges *et al.*, US Patent No. 5,929,307.

Independent claim 6 is directed to a method for modulating a target gene in a cell comprising introducing a first nucleic acid molecule comprising a recombinase gene operably linked to an expression control sequence and a signal sequence recognized by a recombinase and a second nucleic acid molecule comprising a target gene and signal sequences recognized by a recombinase.

It is first noted that the claim is broadly construed as encompassing embodiments wherein the first and second nucleic acid molecules are overlapping.

Throughout the specification, Hodges *et al.* describes methods of providing male sterile plants comprising providing an expression vector comprising a suicide gene flanked by site specific recombination sequences, wherein expression of the suicide gene is regulated by inducing recombination at the flanking site specific recombination sequences (see especially the Abstract and col. 2, ll. 51-64). In col. 8, ¶¶ 3-4, Hodges *et al.* contemplates an embodiment wherein the method comprises introducing the vectors shown in Figure 1d, which comprises the following elements:

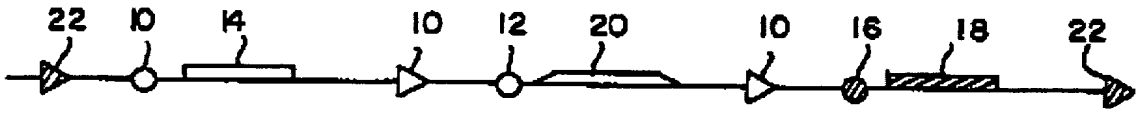

FIG. 1d

Wherein: 22 is a 2nd site specific recombination site; 12 is an anther specific promoter (note that the first circle element should be 12, not 10); 14 is a suicide gene (*i.e.*, the target gene);

20 is a restorer gene (negative regulator of the target suicide gene); 10 is a 1st site specific recombination site; 16 is an inducible promoter and 18 is a first site specific recombinase gene. The vector of Hodges *et al.* comprises all of the elements of the first and second nucleic acid molecule of claim 6.

Furthermore, the method of Hodges *et al.* comprises: introducing the vector into a plant according to the limitations of claim 12 (*supra*); signal sequences in direct orientation with respect to one another according to claim 17; and 2nd site specific recombination sites flanking the target gene so that expression of the recombinase results in excision of the target gene and inactivation of expression of the target gene according to claim 18, and wherein the 2nd site specific recombination sites also flank the positive regulatory element (*i.e.*, the promoter) of the target gene so that expression of the recombinase also results in excision of the positive regulatory element according to claim 19. Likewise, in the vector of Hodges *et al.* the 2nd signal sequences flank the recombinase gene and its positive regulatory element according to claims 21 and 22.

Still further, the second nucleic acid molecule comprises signal sequences flanking a negative regulatory element of the target gene (*i.e.*, the restorer gene) such that expression of the recombinase results in excision of the negative regulator element and expression of the target gene according to claim 20 (note that Hodges *et al.* teaches that the restorer gene encompasses genes that interfere with the expression of the suicide gene; col. 4, ¶5).

Finally, the first and second nucleic acid molecules of Hodges *et al.* are present in the same vector according to claim 23 and the recombinase systems can be the cre/lox system or Flp/FRT system according to claim 25 (see especially col. 7, ¶2).

Thus, the method of Hodges *et al.* comprises all of the elements of the instant claims 6, 12, 17-23 and 25 and the claims are therefore properly rejected under 35 U.S.C. 102(a or e) as being anticipated by Hodges *et al.*

Claims 6, 17-23 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson *et al.*, US Patent No. 5,629,159 (made of record in the IDS filed 26 February 2004).

The limitations of independent claim 6 are described herein above.

Throughout the specification, Anderson describes methods for creating a conditionally immortalized cell comprising providing an expression vector comprising a target gene and site specific recombination sequences, wherein expression of the target gene is regulated by inducing recombination at the site specific recombination sequences (see especially the "SUMMARY OF THE INVENTION" section bridging col. 1-2). In one embodiment, Anderson contemplates introducing the vectors shown in Figure 6B, which comprises the following elements:

FIG._6B

Wherein "RTS" stands for recombinase target sites. The vector of Anderson comprises all of the elements of the first and second nucleic acid molecule of claim 6.

Furthermore, Anderson contemplates the method wherein the RTS sequences are configured to provide excision of intervening sequences when contacted with a recombinase (see, *e.g.*, the paragraph bridging columns 6-7), which the skilled artisan would understand

requires that the RTS sequences be in direct orientation with respect to one another according to claim 17. According to Figure 6B, if the target gene is "immortalization gene" the site specific recombination sites flank the target gene so that expression of the recombinase results in excision of the target gene and inactivation of expression of the target gene according to claim 18, and wherein the site specific recombination sites also flank the positive regulatory element (*i.e.*, the promoter) of the target gene so that expression of the recombinase also results in excision of the positive regulatory element according to claim 19. Likewise, in the vector of Anderson the signal sequences flank the recombinase gene and its positive regulatory element according to claims 21 and 22.

Claim 20, recites that the signal sequences in the second nucleic acid molecule flank a negative regulatory element of the target gene so that expression of the recombinase results in excision of the negative regulatory element and activation of expression of the target gene. According to Figure 6B, if one defines the target gene as the "second selection gene" the site specific recombination sites flank the "stop" signal (a negative regulatory element preventing expression of the "second selection gene") and expression of the recombinase results in excision of the negative regulatory element and activation of expression of the second selection gene.

Finally, the first and second nucleic acid molecules of Anderson are present in the same vector according to claim 23 and the recombinase systems can be the cre/lox system or Flp/FRT system according to claim 25 (see especially col. 4, ¶4).

Thus, the method of Anderson comprises all of the elements of the instant claims 6, 17-23 and 25 and the claims are therefore properly rejected under 35 U.S.C. 102(a or e) as being anticipated by Anderson

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel M Sullivan whose telephone number is 571-272-0779. The examiner can normally be reached on Monday through Friday 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Remy Yucel, Ph.D. can be reached on 571-272-0781. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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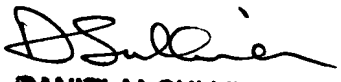
Art Unit 1636



DANIEL M. SULLIVAN
PATENT EXAMINER